MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

BFN3304 – FINANCIAL AND VALUATION MODELLING

(All sections / Groups)

5 MARCH 2020
9.00 a.m. - 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of **13** pages.
2. Answer **ALL FOUR** questions in **FOUR SEPARATE** Excel spreadsheets in **ONE SINGLE** Excel file.
3. Your Excel file should be named with your **STUDENT ID**, followed by your **NAME**, for example: **101101100_MAYA.xls**
4. **SAVE** your answers for all questions in the provided **THUMB-DRIVE.**
5. Please also copy your answers together with formulas onto the given templates of Excel spreadsheets in the **APPENDIX.**
6. Mark distributions are shown in the given templates.

Using the templates provided in the Appendix of this question paper to model the following 4 questions in the Microsoft Excel:

QUESTION 1 (25 MARKS):

You are considering an investment in two project, A and B. Both projects will cost RM120,000, and projected cash flows are as follows:

Year	Project A (RM)	Project B (RM)
1	20000	50000
2	39000	60000
3	45000	49000
4	56000	40000
5	61000	35000

Assuming that the weighted average cost of capital (WACC) is 15%,

a. Calculate the net present value (NPV) and internal rate of return (IRR) for each Project.

(12 marks)

b. Model the investment decisions made for each project, given that both are independent projects. **(4 marks)**

c. If the projects are mutually exclusive, rank these projects based on their respective NPVs and IRRs. Which project should you select?

(9 marks)

QUESTION 2 (25 MARKS):

After your saving has exceeded your targeted amount, you decided to add some bonds to your investment portfolios. Coupon payments are paid twice a year.

Assuming that you have done some analyses, and decided to select the following two bonds:

	Bond A	Bond B
Settlement Date	15/3/2020	15/3/2020
Maturity Date	15/9/2030	15/6/2040
Coupon Rate	6%	7.5%
Market Price (RM)	980	1200
Face Value (RM)	1000	1000
Required Return	6.5%	7.5%

Continued...

a. Calculate the intrinsic values for bond A and bond B. **(5 marks)**

b. Which bond is overvalued/ undervalued? **(4 marks)**

c. Compute the current yield for each bond. **(4 marks)**

d. Compute the yield to maturity for each bond. **(4 marks)**

e. Compute the duration for each bond. **(4 marks)**

f. Which bond is more sensitivity to the change in interest rate? **(4 marks)**

QUESTION 3 (25 MARKS):

As a dealer at SAM Securities, you recommend stocks to your clients. After gathering all information about AirForce airline, you have found that its dividend has been growing at a rate of 3% per year to the current dividend (Do) of RM5 per share. The stock is now selling for RM50 per share, and you believe that an appropriate rate of return for this stock is 10% per year.

a. If you expect that the dividend will grow at a 3% rate into the foreseeable future, what is the highest price at which you would recommend purchasing this stock to your client? Is the current stock price over-valued or under-valued? **(7 marks)**

b. Suppose that you believe that the airline will expand its business with more planes purchased in the next few months. This expansion will cause much higher growth in the next 5-year period of 10% annual growth, followed by a stable growth rate of 4% per annum. Under these new assumptions, what is the value using the two-stage dividend growth model? Is the current stock price over-valued or under-valued? **(14 marks)**

c. Carry out a sensitivity analysis for the stock price computed in (b), when the high-growth rate experienced in the next 5 years, is ranging between 5% and 12%. **(4 marks)**

Continued...

QUESTION 4 (25 MARKS):

Magot's 12-year old son expresses his interest of going to college to pursue his aviation dream when he graduates from his high school in 5 years. The average cost of tuition, room, board, and other expenses at four-year colleges is RM45,000 in the current 2020 - 2021 academic year. This cost is expected to rise at a rate of 4% per year. Magot believes that she can earn a rate of 10% on investment to meet this goal.

a. Assuming that Magot plans to have enough money, saved in 5 years to cover all four years of college cost, how much will Magot need to have accumulated by that time? Note that the total cost is a graduated annuity growing 4% per year and assume that Magot will pay all cost at the beginning of each year. **(10 marks)**

b. If Magot needs to invest one lump sum today in hopes of covering her son's college costs, how much would Magot have to invest? **(5 marks)**

d. If Magot needs to invest annually instead, how much would Magot have to invest at the beginning of each year?

(5 marks)

e. Please answer (c) again, assuming that Magot has an inheritance amount of RM15,000. **(5 marks)**

End of Page

APPENDIX: TEMPLATES FOR ALL QUESTIONS

The given templates in this Appendix are:

1. to be followed exactly when carrying out your modeling in the Microsoft Excel for all of the four given questions.

2. to be used to record answers produced in your Excel spreadsheets for all of the four given questions as follows:

   - Each computed value should be recorded on the correct cell, as it appears on your actual excel spreadsheet in the Microsoft Excel.

   - Formula for each recorded value should be recorded in the 'Excel Formula' column.

   - Formulas for more than one column can be entered in one single excel cell under the Excel-Formula column and spaced from one another with a slash sign "/".

ANSWER FOR QUESTION 1 (25 MARKS):

	A	B	C	D	E	F
1	**INPUT ZONE**					
2						
3	Year	Project A	Project B			
4		(RM)	(RM)			
5	1	20,000	50,000			
6	2	39,000	60,000			
7	3	45,000	49,000			
8	4	56,000	40,000			
9	5	61,000	35,000			
10						
11	Initial Investment (RM)	120,000	120,000			
12	WACC	15.00%				
13						
14	**MODELLING ZONE**					
15	a.					
16	Year	Project A	Project B	Excel formula for column B		Marks
17		(RM)	(RM)			
18	0					(1 mark)
19	1					(1 mark)
20	2					(1 mark)
21	3					(1 mark)
22	4					(1 mark)
23	5					(1 mark)

ANSWER FOR QUESTION 1 (25 MARKS) (CONTINUED…):

	A	B	C	D	E	F
25						
26	NPV					(3 marks)
27	IRR					(3 marks)
28						
29	(b)					
30	Decision made based on IRR for independent projects					(2 marks)
31	Decision made based on NPV for independent projects					(2 marks)
32	(c)					
33	Ranking based on NPV					(2 marks)
34	Ranking based on IRR					(2 marks)
35	Decision made based on IRR for mutually exclusive projects					(2.5 marks)
36	Decision made based on NPV for mutually exclusive projects					(2.5 marks)
37						
38					**Total**	**(25 marks)**
39						

ANSWER FOR QUESTION 2 (25 MARKS):

	A	B	C	D	E	F	G
1	**INPUT ZONE**						
2							
3		**Bond A**	**Bond B**				
4	Settlement Date	15/3/2020	16/3/2020				
5	Maturity Date	15/9/2030	15/6/2040				
6	Coupon Rate	6.00%	7.50%				
7	Market Price (RM)	980	1,200				
8	Face Value (RM)	1,000	1,000				
9	Required Return	6.50%	7.50%				
10	Frequency	2	2				
11							
12	**MODELLING ZONE**						
13		**Bond A**	**Bond B**	**Excel Formula for B column**	**Excel Formula for C column**		**Marks**
14	Intrinsic Value (RM)						(5 marks)
15	Under/Over Valued						(4 marks)
16	Current Yield						(4 marks)
17	Yield to Maturity						(4 marks)
18	Duration (Years)						(4 marks)
19							
20	Which bond is more sensitive to the change in interest rate?						(4 marks)
21							
22					**Total marks**		(25 marks)
23							

ANSWER FOR QUESTION 3 (25 MARKS):

	A	B	C	D	E
1	**INPUT ZONE**				
2	Stock Price (RM)	50			
3	D_0 (RM)	5			
4	Growth Rate	3%			
5	Required Return	15%			
6	High-growth Rate	10%			
7	Stable-growth Rate	4%			
8	Rapid Growth Time (years)	5			
9					
10	**MODELLING ZONE**		**Excel Formula**		**Marks**
11					
12	**Single-stage Model**				
13	Estimated stock price				(5 marks)
14					
15	Stock price is overvalued or undervalued?				(2 marks)
16					

ANSWER FOR QUESTION 3 (25 MARKS) (CONTINUED...):

	A	B	C	D	E
17	**Two-stage Model**				
18					
19	Present value of cash flows during the high-growth period				(5 marks)
20					
21	Present value of cash flows during the Stable-growth period				(5 marks)
22					
23	Estimated stock price				(2 marks)
24					
25	Stock price is overvalued or undervalued?				(2 marks)
26					
27	**SENSITIVITY ANALYSIS**				
28					

ANSWER FOR QUESTION 3 (25 MARKS) (CONTINUED...):

	A	B	C	D	E
27	**SENSITIVITY ANALYSIS**				
28					
29	High-growth Rate	Estimated stock price for Two-stage Model	Excel Formula		
30					(2 marks)
31	5%				(2 marks)
32	6%				
33	7%				
34	8%				
35	9%				
36	10%				
37	11%				
38	12%				
39					
40			Total marks		(25 marks)
41					

ANSWER FOR QUESTION 4 (25 MARKS):

	A	B	C	D	E	F	G
1	**INPUT ZONE**						
2	Cost of College Today (RM)	45,000					
3	Annual Rate of Increase	4.00%					
4	Annual Rate of Return	10.00%					
5	Years until college	5					
6	Years in College	4					
7	Inheritance (RM)	15,000					
8							
9							
10	Year of College	Annual College Cost	Present Value at beginning of 1st of college	Excel Formula for column B	Excel Formula for column D		Marks
11	1						(2 marks)
12	2						(2 marks)
13	3						(2 marks)
14	4						(2 marks)
15							
16	(a)	Total college cost					(2 marks)

ANSWER FOR QUESTION 4 (25 MARKS) (CONTINUED...):

	A	B	C	D	E	F	G
17							
18	(b)	Magot's investment fund needed now, in order to cover the college cost in 5 years' time					(5 marks)
19							
20	©	Magot's annual investment for colledge fund					(5 marks)
21							
22							
23	(d)	Magot's annual investment for colledge fund					(5 marks)
24							
25							
26						Total mark	(25 marks)
27							